INDIGO: Inter-service Data Integration for Geodetic Operations

Quick Facts

Proposed November 2002

Selected July 2003

Funded July 2004

PI: R. Neilan/JPL

Co-I's: R. Borgen/JPL

A. Moore/JPL

C. Noll/NASA-GSFC

M. Pearlman/Harvard

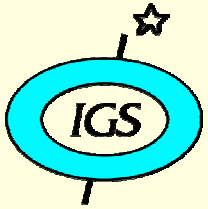
D. Stowers/JPL

N. Vandenberg/NVI

(& D. Behrend/NVI)

F. Webb/JPL

T. Yunck/JPL



Supports the 3 Central Bureaus and CDDIS, and adds specific responsibilities to develop data and information services to support multi-technique studies.

Science Advisory Team

- D. Argus
- G. Blewitt
- R. Gross
- T. Herring
- B. King
- S. Klosko
- C. Ma
- A. Niell
- E. Pavlis
- J. Ray
- Z. Altamimi
- G. Beutler
- H. Drewes
- R. Ferland
- W. Gurtner
- Ch. Reigber
- M. Rothacher
- W. Schlueter
- J. Vondrak

Some words from the proposal

"…providing uniform access to heterogeneous space geodetic data systems"

"…evolve data information systems well-suited to users' needs"

"…build upon the successful histories of each service to provide an ensemble information service whose utility to geodetic science is greater than the sum of its parts"

"…will allow a single point of entry to the combined set of IGS, ILRS, and IVS information, as well as a route to the technique-specific information systems"

Some words from the proposal

"*Each service will continue to maintain cognizance and management of its own information systems, to allow best application of domain expertise, as well as convenience to single-technique users. Areas common across the services will be re-engineered to meet agreed-upon characteristics*"

"The system will evolve to a unified web presence which draws from the technique-specific information systems. Data production will continued in the distributed manner… distribution will be augmented by geospatial search tools and GSAC capabilities which present data from the distributed sources as if from a single archive. User support will be strengthened with search capabilities, uniformity of presentation…"

GSAC quick summary

"Without getting into the details the GSAC helps you locate GPS data files which are archived at different GPS Data Archive Centers from a single user interface."

(See http://gsac.ucsd.edu for the details!)

Various archives ("wholesalers") offer information about their holdings in machine-readable format. These are collected in a single database by a "retailer." A client queries a retailer for data sets constrained by, e.g., a spatial region and a timespan, and it is delivered from whatever wholesalers happen to have it.

User does not need to know access details at each archive!

First few goals & objectives

- Develop a common catalog of existing services and products
- Analyze interdependencies & identify synergies between current services (station metadata, signal source metadata, data & product information, publications, calendars, communication vehicles…)
- Develop & implement common interface for user access at each service where synergistic

First (real) milestone: Assess current services, prepare report on data and products.

In other words: Determine what the intertechnique investigators need, *then* decide on an implementation.

The Assessment

What geodetic techniques are you using?

What kinds of data, metadata, and products do you need to gather and where do you typically get them

What kind of preparation do you have to do to use them? (Examples: format translations, reference frame conversions, unit conversions, etc.). If you have had to tediously put things together by hand, please describe.

Is there some data type which you would like to have access to, but you have not found, or have not found in a usable state?

If you have used GPS RINEX data, have you used the GSAC (GPS Seamless Archive Centers)? If yes, what has been your experience? How could it be improved? If no, why not?

Do you have a wishlist of capabilities regarding the provision of data, metadata, and products and/or information that would make your investigations easier? If so, please note which are top priority.

Can you think of other investigators whom we should talk to?

What other questions should we ask?

People to talk to

- E. Pavlis
- Z. Altamimi
- K. Larson/K. Choi
- T. Herring
- A. Niell
- Z. Malkin
- J. Dawson
- J. Ray
- P. Willis
- R. Gross

- G. Blewitt
- J. Johansson
- S. Zerbini
- P.H. Anderson
- M. Rothacher
- J. Boehm
- V. Tesmer
- R. Haas
- M. Feissel
- O. Titov
- O. Sovers

- B. Chao
- J.P. Avouac
- S. Gutman
- Analysis coordinators
- T. Johnson
- P. Fang
- iono person
- ggf person

Some answers so far

Lots of metadata needs

- Site geology
- VLBI antenna dimensions & material
- Time-dependent mass of GPS satellites
- GPS satellite phase centers
- LEO shape, reflectivity, dynamic models
- Anomaly periods (e.g. snow, wet ground, equip probs)
- Met instrument calibration history

Acquiring co-location datasets to study: search by period of data availability, geographical area, and/or data type ("Give me all co-located, simultaneous GPS and DORIS data from the southern hemisphere in Summer, 2003")

More answers

Arrange campaigns where everyone works on the same thing and compares results. Make it easy to get all the data and supporting metadata. (For CONT02, one has to go find the GPS, VLBI, WVR data separately).

Settle on conventions for comparing across techniques:

- GPS EOP + rate 2x/day
- VLBI 1x/day, no rate
- SLR no combined rate

AC solutions are important if combinations unavailable, or in early stages of study & comparison. Make info on AC models, conventions, contact info easily available.

More answers

Need to get site tie info in machine-readable format (minimally, tabular; optimally, SINEX). Offer all vectors (both observed and calculated).

Make it easy to get plots or data of time series from different techniques together, and allow adjustment of the ties.

Some principles

Don’t forget about power users, who have automated processes in place.

Be inclusive with sites, including old (decommissioned) and regional sites.

Provide facilities not already provided elsewhere.

Be extensible to other techniques.

From here

Complete assessment and write report in January, formulating plans for what services will be offered.

Advisory team will review the plans.

Do you have a “wishlist” of needs? Please communicate with any INDIGO team member!